

WHAT IS CLAIMED IS:

1        1. A wiring board wherein an opening is defined at a  
2 predetermined position of a film-like insulating substrate, an  
3 electric wiring provided with a connection terminal covering the  
4 opening is disposed on a principal plane of the insulating substrate,  
5 and a conductive member to be connected with the connection terminal  
6 of the electric wiring is disposed inside the opening, comprising:

7              said conductive member having a thickness from a surface on  
8 which said electric wiring of the insulating substrate has been  
9 disposed being thinner than that of said insulating substrate.

1        2. A wiring board as claimed in claim 2, wherein:

2              a thickness of said conductive member is 1/2 or more of that  
3 of said insulating substrate.

1        3. A wiring board as claimed in claim 1, wherein:

2              said conductive member has a thinner thickness at the central  
3 portion of said opening than that of a vicinity of a side wall of  
4 said opening.

1        4. A wiring board as claimed in claim 2, wherein:

2              said conductive member has a thinner thickness at the central  
3 portion of said opening than that of a vicinity of a side wall of  
4 said opening.

1        5. A wiring board as claimed in claim 1, wherein:

2              said conductive member is made from any member selected from

1           3   the group consisting of copper (Cu), nickel (Ni), and silver (Ag).

1           6. A wiring board as claimed in claim 2, wherein:  
2            said conductive member is made from any member selected from  
3   the group consisting of copper (Cu), nickel (Ni), and silver (Ag).

1           7. A wiring board as claimed in claim 3, wherein:  
2            said conductive member is made from any member selected from  
3   the group consisting of copper (Cu), nickel (Ni), and silver (Ag).

1           8. A wiring board as claimed in claim 1, wherein:  
2            a thin film layer made of nickel (Ni) and a thin film layer  
3   made of gold (Au) are sequentially disposed on a surface of said  
4   conductive member.

1           9. A wiring board as claimed in claim 2, wherein:  
2            a thin film layer made of nickel (Ni) and a thin film layer  
3   made of gold (Au) are sequentially disposed on a surface of said  
4   conductive member.

1           10. A wiring board as claimed in claim 3, wherein:  
2            a thin film layer made of nickel (Ni) and a thin film layer  
3   made of gold (Au) are sequentially disposed on a surface of said  
4   conductive member.

1           11. A wiring board as claimed in claim 4, wherein:  
2            a thin film layer made of nickel (Ni) and a thin film layer  
3   made of gold (Au) are sequentially disposed on a surface of said

4 conductive member.

1           12. A semiconductor device wherein a wiring board in which  
2 an opening is defined at a predetermined position of a film-like  
3 insulating substrate, an electric wiring provided with a connection  
4 terminal covering said opening is disposed on a principal plane  
5 of said insulating substrate, and a conductive member to be connected  
6 with the connection terminal of said electric wiring is disposed  
7 inside the opening is placed; a semiconductor chip is placed on  
8 the surface of said wiring board on which said electric wiring has  
9 been disposed; the electric wiring of said wiring board is  
10 electrically connected with an external electrode of the  
11 semiconductor chip; and said semiconductor chip, said electric  
12 wiring, and connecting section for said electric wiring and said  
13 external electrode of the semiconductor chip are sealed with a  
14 sealing insulator, comprising:

15           said conductive member having a thickness from a surface on  
16 which said electric wiring of the insulating substrate has been  
17 formed being thinner than that of said insulating substrate.

1           13. A semiconductor device as claimed in claim 12, wherein:  
2           said semiconductor chip is placed in such that a surface opposed  
3 to the surface on which said external electrode has been formed  
4 is opposed to said wiring board; and  
5           said external electrode is connected with said electric wiring  
6 by means of a bonding wire.

1           14. A semiconductor device as claimed in claim 12, wherein:

2       said semiconductor chip is placed in such that said external  
3   electrode thereof is opposed to said wiring board; and  
4       said external electrode is connected with said electric wiring  
5   by means of a protrusion conductor.

1       15. A semiconductor device as claimed in claim 8, wherein:  
2       a thickness of said conductive member is 1/2 or more of that  
3   of said insulating substrate.

1       16. A semiconductor device as claimed in claim 12, wherein:  
2       a thickness of said conductive member is 1/2 or more of that  
3   of said insulating substrate.

1       17. A semiconductor device as claimed in claim 13, wherein:  
2       a thickness of said conductive member is 1/2 or more of that  
of said insulating substrate.

1       18. A semiconductor device as claimed in claim 14, wherein:  
2       a thickness of said conductive member is 1/2 or more of that  
3   of said insulating substrate.

1       19. A semiconductor device as claimed in claim 8, wherein:  
2       said conductive member has a thinner thickness at the central  
3   portion of said opening than that of a vicinity of a side wall of  
4   said opening.

1       20. A semiconductor device as claimed in claim 12, wherein:  
2       said conductive member has a thinner thickness at the central

3 portion of said opening than that of a vicinity of a side wall of  
4 said opening.

1 21. A semiconductor device as claimed in claim 13, wherein:  
2 said conductive member has a thinner thickness at the central  
3 portion of said opening than that of a vicinity of a side wall of  
4 said opening.

1 22. A semiconductor device as claimed in claim 14, wherein:  
2 said conductive member has a thinner thickness at the central  
portion of said opening than that of a vicinity of a side wall of  
4 said opening.

1 23. A semiconductor device as claimed in claim 15, wherein:  
2 said conductive member has a thinner thickness at the central  
portion of said opening than that of a vicinity of a side wall of  
4 said opening.

1 24. A semiconductor device as claimed in claim 8, wherein:  
2 said conductive member is made from any member selected from  
3 the group consisting of copper (Cu), nickel (Ni), and silver (Ag).

1 25. A semiconductor device as claimed in claim 12, wherein:  
2 said conductive member is made from any member selected from  
3 the group consisting of copper (Cu), nickel (Ni), and silver (Ag).

1 26. A semiconductor device as claimed in claim 13, wherein:  
2 said conductive member is made from any member selected from

1           3 the group consisting of copper (Cu), nickel (Ni), and silver (Ag).

1       27. A semiconductor device as claimed in claim 14, wherein:  
2           said conductive member is made from any member selected from  
3       the group consisting of copper (Cu), nickel (Ni), and silver (Ag).

1       28. A semiconductor device as claimed in claim 15, wherein:  
2           said conductive member is made from any member selected from  
3       the group consisting of copper (Cu), nickel (Ni), and silver (Ag).

1       29. A semiconductor device as claimed in claim 19, wherein:  
2           said conductive member is made from any member selected from  
3       the group consisting of copper (Cu), nickel (Ni), and silver (Ag).

1       30. A semiconductor device as claimed in claim 8, wherein:  
2           a thin film layer made of nickel (Ni) and a thin film layer  
3       made of gold (Au) are sequentially disposed on a surface of said  
4       conductive member.

1       31. A semiconductor device as claimed in claim 12, wherein:  
2           a thin film layer made of nickel (Ni) and a thin film layer  
3       made of gold (Au) are sequentially disposed on a surface of said  
4       conductive member.

1       32. A semiconductor device as claimed in claim 13, wherein:  
2           a thin film layer made of nickel (Ni) and a thin film layer  
3       made of gold (Au) are sequentially disposed on a surface of said  
4       conductive member.

1       33. A semiconductor device as claimed in claim 14, wherein:  
2           a thin film layer made of nickel (Ni) and a thin film layer  
3          made of gold (Au) are sequentially disposed on a surface of said  
4          conductive member.

1       34. A semiconductor device as claimed in claim 15, wherein:  
2           a thin film layer made of nickel (Ni) and a thin film layer  
3          made of gold (Au) are sequentially disposed on a surface of said  
4          conductive member.

1       35. A semiconductor device as claimed in claim 19, wherein:  
2           a thin film layer made of nickel (Ni) and a thin film layer  
3          made of gold (Au) are sequentially disposed on a surface of said  
4          conductive member.

1       36. A semiconductor device as claimed in claim 24, wherein:  
2           a thin film layer made of nickel (Ni) and a thin film layer  
3          made of gold (Au) are sequentially disposed on a surface of said  
4          conductive member.

1       37. A process for the production of a wiring board, comprising  
2          the steps of:  
3           defining an opening at a predetermined position of a film-like  
4          insulating substrate;  
5           forming a conductive thin film on a principal plane of said  
6          insulating substrate;  
7           etching said conductive thin film to form an electric wiring

8 provided with a connection terminal covering said opening; and  
9 forming a conductive member having a thickness equal to or  
10 thinner than that of said insulating substrate.

1 38. A process for the production of a wiring board, comprising  
2 the steps of:

3 defining an opening at a predetermined position of a film-like  
4 insulating substrate;

5 forming a conductive thin film on a principal plane of said  
6 insulating substrate;

7 etching said conductive thin film to form an electric wiring  
8 provided with a connection terminal covering said opening;

9 forming a conductive member having a thickness equal to or  
10 thinner than that of said insulating substrate; and

11 forming sequentially a thin film layer made of nickel (Ni)  
12 and a thin film layer made of gold (Au) on the surfaces of said  
13 electric wiring and said conductive member.

1 39. A process for the production of a wiring board as claimed  
2 in claim 37, wherein:

3 a step for forming said conductive member is effected by forming  
4 a copper (Cu) plating or a nickel (Ni) plating in accordance with  
5 electroplating method.

1 40. A process for the production of a wiring board as claimed  
2 in claim 38, wherein:

3 a step for forming said conductive member is effected by forming  
4 a copper (Cu) plating or a nickel (Ni) plating in accordance with

5 electroplating method.

1 ~~u~~ 42. A process for the production of a wiring board as claimed  
2 in claim 37, wherein:

3 a step for forming said conductive member is effected by forming  
4 a nickel (Ni) plating in accordance with the electroless plating method.

1 ~~u~~ 43. A process for the production of a wiring board as claimed  
2 in claim 38, wherein:

3 a step for forming said conductive member is effected by forming  
4 a nickel (Ni) plating in accordance with the electroless plating method.

~~u~~ 43. A process for the production of a wiring board as claimed  
in claim 37, wherein:

a step for forming said conductive member is effected by such  
a manner that the inside of said opening is filled with a conductive  
paste of silver (Ag) or copper (Cu), and said conductive paste is  
solidified.

1 ~~u~~ 44. A process for the production of a wiring board as claimed  
2 in claim 38, wherein:

3 a step for forming said conductive member is effected by such  
4 a manner that the inside of said opening is filled with a conductive  
5 paste of silver (Ag) or copper (Cu), and said conductive paste is  
6 solidified.

1 45. A process for the production of a wiring board as claimed  
2 in claim 37, wherein:

3        a step for forming said conductive member is effected by such  
4    a manner that said conductive member has a thinner thickness at  
5    the central portion of said opening than that of a vicinity of a  
6    side wall of said opening.

1        46. A process for the production of a wiring board as claimed  
2    in claim 38, wherein:

3        a step for forming said conductive member is effected by such  
4    a manner that said conductive member has a thinner thickness at  
5    the central portion of said opening than that of a vicinity of a  
6    side wall of said opening.

1        47. A process for the production of a wiring board as claimed  
2    in claim 39, wherein:

3        a step for forming said conductive member is effected by such  
4    a manner that said conductive member has a thinner thickness at  
5    the central portion of said opening than that of a vicinity of a  
6    side wall of said opening.

1        48. A process for the production of a wiring board as claimed  
2    in claim 41, wherein:

3        a step for forming said conductive member is effected by such  
4    a manner that said conductive member has a thinner thickness at  
5    the central portion of said opening than that of a vicinity of a  
6    side wall of said opening.

1        49. A process for the production of a wiring board as claimed  
2    in claim 43, wherein:

3        a step for forming said conductive member is effected by such  
4    a manner that said conductive member has a thinner thickness at  
5    the central portion of said opening than that of a vicinity of a  
6    side wall of said opening.

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